



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/738,435	12/17/2003	Christopher Gregory Malone	200311632-1	8319

22879 7590 01/08/2007  
HEWLETT PACKARD COMPANY  
P O BOX 272400, 3404 E. HARMONY ROAD  
INTELLECTUAL PROPERTY ADMINISTRATION  
FORT COLLINS, CO 80527-2400

EXAMINER
----------

LEO, LEONARD R

ART UNIT	PAPER NUMBER
----------	--------------

3744

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/08/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

NT

<b>Office Action Summary</b>	Application No. 10/738,435	Applicant(s) MALONE ET AL.	
	Examiner Leonard R. Leo	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 November 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-28,30 and 32-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28,30 and 32-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 14, 2006 has been entered.

Claims 1-28, 30 and 32-34 are pending.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 12-17, 25, 30 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Kociecki. Heat exchanger 14 having a vertical (i.e. top to bottom) and horizontal (i.e. left to right) dimension is mounted on a front surface 12 of the chassis. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987). The recitation of “rack-mounted computer” does not further limit the structure of a chassis.

Art Unit: 3744

Regarding claims 14-15, the wherein clause does not set forth a structural relationship and is inherently met by the device of Kociecki.

Regarding claim 16, as noted above, the recitation of “server system” does not further limit the structure of a processor. In this respect, transistors 398, 399 of Kociecki are read as a “processor.”

Regarding claim 17, as noted above, the recitation of “server system” does not further limit the structure of a circuit board. In this respect, Kociecki discloses circuit boards 332, 368.

Regarding claim 30, the recitation of “rack-mounted computer *server*” does not further limit the structure of a chassis. The cage 74 is read as the “rack” having an opening on the front thereof. As well known in the art, a cage is typically open on all sides except where the connectors are mounted.

Regarding claim 32, Figure 14 of Kociecki discloses airflow 440 produced by a fan.

Claims 1, 12, 14-17 and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Tokuhara et al. Figures 3-7 of Tokuhara et al disclose heat exchanger fins 32e mounted on a rear surface 32d of the chassis. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987). The recitation of “rack-mounted computer” does not further limit the structure of a chassis.

Regarding claims 14-15, the wherein clause does not set forth a structural relationship and is inherently met by the device of Tokuhara et al.

Art Unit: 3744

Regarding claim 16, as noted above, the recitation of "server system" does not further limit the structure of a processor. Arguendo, Tokuhara et al discloses CPU 36.

Regarding claim 17, as noted above, the recitation of "server system" does not further limit the structure of a circuit board. Arguendo, Tokuhara et al discloses circuit board 34.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-7, 13, 18-24 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tokuhara et al in view of Owens et al.

Tokuhara et al discloses all the claimed limitations except tubing in the heat exchanger. Although Tokuhara et al discloses tubing 72, the tubing is not external of the chassis.

Owens et al discloses an apparatus comprising a rack mountable chassis 80 having heat generating components 114, 116, 118, 120 therein, and an external heat exchanger mounted at the rear thereof, wherein the heat exchanger comprising fins 84 and tubing 88, 90, 92 for the purpose of improving heat exchange.

Since Tokuhara et al and Owens et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Owens et al would have been recognized in the pertinent art of Tokuhara et al.

Art Unit: 3744

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Tokuhara et al tubing in the external heat exchanger for the purpose of improving heat exchange as recognized by Owens et al.

Regarding claim 4, Figure 6 of Tokuhara et al discloses tubing 72 having a "first heat transfer section" abuts the CPU 36. The tubing 72 also has a "second heat transfer section" that abuts the fins 32e. Owens et al also discloses fins 84 abutting tubing 88, 90, 92.

Regarding claim 6, Tokuhara et al employs natural convection.

Regarding claims 7 and 23, the rack-mounted chassis of Owens et al inherently employs fans or blowers for forced convection.

Regarding claims 13 and 30, Owens et al discloses a rack.

Regarding claims 19-22, the inclination of the tubing 72 of Tokuhara et al is read as "means for moving the fluid."

Claims 8-11, 26-28 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tokuhara et al in view of Owens et al as applied to claims 2-7, 13, 18-24 and 30 above, and further in view of Aoki et al.

The combined teachings of Tokuhara et al and Owens et al lacks fans inside the chassis.

Aoki et al discloses an apparatus comprising a computer server chassis 3; processors 6; tubing sections 23, 13; and internal fans 14, 43 for the purpose of cooling internal components.

Since Tokuhara et al and Aoki et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Aoki et al would have been recognized in the pertinent art of Tokuhara et al.

Art Unit: 3744

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Tokuhara et al internal fans for the purpose of cooling internal components as recognized by Aoki et al. The wherein clause is merely a functional recitation. See MPEP 2114.

Regarding claims 9 and 26, Aoki et al discloses pump 15 for the liquid cooling system.

Regarding claims 10 and 28, Aoki et al discloses cold plates 16.

Regarding claim 11, Aoki et al discloses brine or an antifreeze liquid as the working fluid. As evidenced by Fox et al (column 7, lines 4-8), water and ethylene glycol is a well known coolant with a high boiling point in electronic cooling.

### ***Response to Arguments***

The objection to drawings under 37 CFR 1.83(a) with respect to claim 8 is withdrawn in view of cancellation of the claimed subject matter.

The objections to claims 2 and 12 are withdrawn in view of the claim amendments.

The rejection of claims 33-34 under 35 U.S.C. 112, second paragraph is withdrawn in view of the cancellation of the claimed subject matter.

Applicant's arguments have been fully considered but they are not persuasive. Applicants are correct in their assumption of the specific references in the grounds of rejection. Kociecki (5,940,288) was cited on the PTO-1449 filed on December 17, 2003. Tokuhara et al (6,549,414) was cited on the PTO-892 mailed on August 11, 2004. Aoki et al (2004/0250992) was cited on the PTO-892 mailed on August 11, 2005. Aoki et al (6,967,842) is the patent of the former document and not of record. However, both Aoki et al documents are available under 35 USC

Art Unit: 3744

102(e). Applicants are invited to telephone the Examiner in the event of any discrepancy with respect to the references in the grounds of rejection.

The newly claimed subject matter “a rack-mounted computer chassis that comprises ... chassis major depth dimension ... minor vertical and horizontal dimensions” is believed met by the device of Kociecki or Tokuhara et al. The device of Kociecki or Tokuhara et al disclose a depth dimension and vertical and horizontal dimensions. In this respect, the limitation does not set forth a relationship between the depth, vertical and horizontal dimensions. If it is applicants’ desire to claim such a relationship, then the depth dimension should be recited as “larger or greater than” the vertical and horizontal dimensions. As noted in the previous and instant Office actions, Kociecki discloses heat exchanger 14 having a vertical (i.e. top to bottom) and horizontal (i.e. left to right) dimension is mounted on a front surface 12 of the chassis. Similarly, Figures 3-7 of Tokuhara et al disclose heat exchanger fins 32e mounted on a rear surface 32d of the chassis.

The newly amended recitations “operably extendible” and “operably fittable” are not positive recitations. The recitations are similar to “adaptable,” where it has been held that the recitation that an element is “adapted to” perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison*, 69 USPQ 138. Arguendo, the device of Kociecki or Tokuhara et al are capable of being mounted in a rack, cabinet or housing. It is further noted, the recitation of a “rack” is not positively recited until claim 30, which is a combination claim. Thus, the subcombination of a “chassis” as claimed in claims 1 and 25 is met by the device of Kociecki or Tokuhara et al.



Art Unit: 3744

The secondary reference Owens et al teaches one of ordinary skill in the art to employ in Tokuhara et al tubing in the external heat exchanger for the purpose of improving heat exchange. Applicants do not traverse this teaching, rather applicants contend Owens does not overcome the alleged deficiencies of Tokuhara et al. Owens et al is not relied upon to teach the newly claimed subject matter, which applicants argue. However, it is noted that Owens et al discloses an apparatus comprising a rack mountable chassis 80 having heat generating components 114, 116, 118, 120 therein, and an external heat exchanger mounted at the rear thereof, wherein the heat exchanger has a vertical and horizontal dimension "substantially equal to and coupled in alignment with" the rear surface of the chassis.

The secondary reference of Aoki et al teaches one of ordinary skill in the art to employ in Tokuhara et al internal fans for the purpose of cooling internal components. Applicants do not traverse this teaching, rather applicants contend Aoki et al does not overcome the alleged deficiencies of Tokuhara et al. Aoki et al is not relied upon to teach the newly claimed subject matter, which applicants argue.

No further comments are deemed necessary at this time.

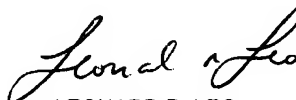
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard R. Leo whose telephone number is (571) 272-4916. The examiner can normally be reached on Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Art Unit: 3744

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
LEONARD R. LEO  
PRIMARY EXAMINER  
ART UNIT 3744

December 27, 2006